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Claims

[c1] 1. A method for fabricating a thin film of an organic electroluminescent device, adapted to form a patterned thin film layer on a substrate, the method comprising:
providing a mask;
aligning the substrate and the mask under non-vacuum environment, fastening the mask with the substrate; and
transferring the fastened substrate and mask into vacuum environment, forming the patterned thin film layer by the mask.

[c2] 2. The method for fabricating a thin film of an organic electroluminescent device of claim 1, wherein the non-vacuum environment is atmosphere environment.

[c3] 3. The method for fabricating a thin film of an organic electroluminescent device claim 1, wherein the non-vacuum environment is environment having water and/or oxygen concentration about from 0.1 to 100 ppm.

[c4] 4. The method for fabricating a thin film of an organic electroluminescent device of claim 1, wherein the patterned thin film layer is formed by vapor deposition or sputtering.

[c5] 5. The method for fabricating a thin film of an organic electroluminescent device of claim 1, wherein the step of forming the patterned thin film layer comprises:
forming a first conductive layer on the substrate by using the mask; and
forming a second conductive on the first conductive layer by using the mask.

[c6] 6. A method for fabricating a thin film of an organic electroluminescent device, adapted to form a patterned thin film layer on a substrate, the method comprising:
providing a film-forming apparatus, comprising at least one vacuum chamber and at least one non-vacuum chamber;
aligning the substrate and the mask in the non-vacuum chamber, fastening the mask with the substrate; and
transferring the fastened substrate and mask into the vacuum chamber, forming the patterned thin film layer by the mask.

[c7] 7. The method for fabricating a thin film of an organic electroluminescent device of claim 6, wherein the non-vacuum environment is atmosphere environment.

[c8] 8. The method for fabricating a thin film of an organic electroluminescent device of claim 6, wherein the non-

vacuum environment is environment having water and/or oxygen concentration about from 0.1 to 100 ppm.

[c9] 9. The method for fabricating a thin film of an organic electroluminescent device of claim 6, wherein the patterned thin film layer is formed by vapor deposition or sputtering.

[c10] 10. The method for fabricating a thin film of an organic electroluminescent device of claim 6, wherein the step of forming the patterned thin film layer comprises:
forming a first conductive layer on the substrate by using the mask; and
forming a second conductive on the first conductive layer by using the mask.

[c11] 11. A film-forming apparatus, adapted to form a patterned thin film layer on a substrate by a mask, comprising:
at least one vacuum chamber;
at least one non-vacuum chamber;
an alignment apparatus, disposed in the non-vacuum chamber, adapted to align the substrate and the mask; and
a film-forming device, disposed in the vacuum chamber, wherein the film-deposition device forms the patterned thin film layer by using the mask.

[c12] 12. The film-forming apparatus of claim 11, further comprising a transferring apparatus, disposed in the vacuum chamber and the non-vacuum chamber for transferring the substrate therebetween.

[c13] 13. The film-forming apparatus of claim 11, wherein the non-vacuum chamber has atmospheres environment.

[c14] 14. The film-forming apparatus of claim 11, wherein the non-vacuum chamber has water and/or oxygen concentration about from 0.1 to 100 ppm.

[c15] 15. The film-forming apparatus of claim 11, wherein the alignment apparatus comprises:
a holder, adapted to fix the mask;
a first alignment module, adapted to support the holder, the first alignment module adapted to move on a X-Y plane and/or rotate along along Z axis;
a second alignment module, disposed over the first alignment module, wherein the second alignment module is adapted to fix the substrate, and the second alignment module is adapted to move along a Z axis; and
a sensor, disposed over the first alignment module.

[c16] 16. The film-forming apparatus of claim 15, wherein the first alignment module comprises:
a platform; and

a plurality of fixing devices, disposed on the platform.

[c17] 17. The film-forming apparatus of claim 16, wherein the fixing devices comprise a wheel type alignment pin or a ball type alignment device.

[c18] 18. The film-forming apparatus of claim 17, wherein the fixing devices further comprise a pushing device, adapted to push the holder for contacting the holder with the wheel type alignment pin or a ball type alignment device.

[c19] 19. The film-forming apparatus of claim 16, wherein the fixing devices comprise:
a first pushing device; and
a second pushing device, wherein the first pushing device and the second pushing device are adapted to clamp and fasten the holder on the platform.

[c20] 20. The film-forming apparatus of claim 15, wherein the second alignment module comprises a clamp or a vacuum device.

[c21] 21. The film-forming apparatus of claim 15, wherein the sensor is a charge coupled device.

[c22] 22. The film-forming apparatus of claim 11, wherein the alignment apparatus comprises:

a holder, adapted to fix the mask;
a first alignment module, adapted to support the holder, the first alignment module is fixed;
a second alignment module, disposed over the first alignment module, wherein the second alignment module is adapted to fix the substrate, and to move on a X-Y plane and along a Z axis and/or rotate along Z axis; and
a sensor, disposed over the first alignment module.

[c23] 23. The film-forming apparatus of claim 22, wherein the first alignment module comprises:
a platform; and
a plurality of fixing devices, disposed on the platform.

[c24] 24. The film-forming apparatus of claim 23, wherein the fixing devices comprise a wheel type alignment pin or a ball type alignment device.

[c25] 25. The film-forming apparatus of claim 24, wherein the fixing devices further comprise a pushing device, adapted to push the holder for contacting the holder with the wheel type alignment pin or the ball type alignment device.

[c26] 26. The film-forming apparatus of claim 23, wherein the fixing devices comprise:
a first pushing device; and

a second pushing device, wherein the first pushing device and the second pushing device are adapted to clamp and fasten the holder on the platform.

[c27] 27. The film-forming apparatus of claim 22, wherein the second alignment module comprises a clamp or a vacuum device.

[c28] 28. The film-forming apparatus of claim 22, wherein the sensor is a charge coupled device.

[c29] 29. A film-forming apparatus, adapted to form a patterned thin film layer on a substrate by a mask, comprising:
an alignment chamber;
a loading chamber, connected with the alignment chamber;
a plurality of vacuum chambers, connected with the loading chamber, comprising:
a first film-forming chamber;
a second film-forming chamber; and
a connecting chamber, connecting the loading chamber with the first and the second film-forming chambers;
an alignment apparatus, disposed in the alignment chamber, adapted to align the substrate and the mask; and
a film-forming device, disposed in the first and the sec-

ond film-forming chambers, wherein the film-forming device is adapted to form the patterned thin film layer on the substrate by the mask.

[c30] 30. The film-forming apparatus of claim 29, further comprising a transferring apparatus, disposed among the alignment chamber, the loading chamber, the connecting chamber, the first film-forming chamber and the second film-forming chamber, for transferring the substrate therebetween.

[c31] 31. The film-forming apparatus of claim 29, wherein the loading chamber has atmosphere environment, environment having water and/or oxygen concentration about from 0.1 to 100 ppm or vacuum environment.

[c32] 32. The film-forming apparatus of claim 29, wherein the alignment chamber has atmosphere environment or environment having water and/or oxygen concentration about from 0.1 to 100 ppm.